

System supplier for mechanical and electrical components

Rohde & Schwarz Teisnach plant



# Electrical and mechanical precision for the world market

Rohde & Schwarz is the largest manufacturer of electronic T&M technology in Europe and a market leader in a variety of special fields in wireless communication, including sound and TV broadcasting. For decades, our products have been synonymous with precision, quality and reliability. Our production plants have significantly contributed to our standing by making Made in Germany by Rohde & Schwarz an internationally recognized hallmark.

We manufacture not only the electronic components of our products, but all mechanical parts as well. Our considerable manufacturing depth enables us to quickly and flexibly respond to new requirements from our inhouse development departments and — because we offer our manufacturing know-how as a service — to the requests of customers who want to benefit from our skills.

The Teisnach plant manufactures not only all housing parts and PCBs for Rohde & Schwarz products, but also cables, wire-wrap parts as well as customized mechanical parts and assemblies. Its highly qualified and motivated staff and state-of-the-art production facilities make Rohde & Schwarz Teisnach the ideal partner to process your orders quickly and cost-effectively.

More than 800 specialists work six days a week in three shifts on a  $33\,000 \text{ m}^2$  production site to make optimum use of the plant's resources – a clear cost advantage that we gladly share with you.

Our top priority is the lasting satisfaction of our customers. This obligates us to perform all tasks with utmost care.

Our quality management system is certified to DIN EN ISO 9001 and 14001 and complies with the NATO requirements as set forth by AQAP 110 and 150. In addition, the Teisnach plant is certified for the production of aeronautical equipment.

All phases of procurement and production are subjected to quality tests which are documented. The environmental protection measures that we implement reflect our comprehensive quality concept. Our computer-controlled wastewater treatment for the plant ensures top water quality at all times, maintaining the beauty of the landscape around the plant.





ISO 14001 ISO 9001

### **Our services**

As a customer of the Teisnach plant you benefit from a wide array of production services virtually unrivalled on the market. Our broad range of facilities enables us not only to use all common mechanical processing methods, but also to provide correlated services and complete systems. For very simple jobs, you can request one specific service such as stamping a metal plate and provide us with the production data.

On the other hand, you may want us to handle much more complex jobs for you. In this case, you merely need to provide us with the key data for a mechanical module, for example, and outline the standard specifications with a detailed description of the scope of functions. We will take care of the rest. We will develop the module based on the objectives of easy manufacture and cost-efficient use of materials, and efficiently produce it on time at our modern facilities. We are not afraid to tackle complicated requests and parts layouts since we develop the tools for the various production methods on CAD workstations ourselves and produce them inhouse. Here, too, you benefit from the decades of experience that stand behind every high-quality Rohde & Schwarz product.

As to batch size, we are customer-oriented. Whether you need a one-of-a-kind complex tool or full-fledged series production, we are ready to work with you. It goes without saying that we will provide you with in-depth consultation, whatever your request. Our skilled field consultants will gladly visit you to find out your specific production requirements on-site and develop a solution with you. The Teisnach plant can provide you with the following services:

- Development and construction
- Cutting machining
- Non-cutting machining
- Assembly of mechanical modules, mechanical/electrical systems and special machinery
- Surface finishing by electroplating
- Lacquer coating, powder coating, screen printing
- Manufacture of tools, systems and jigs
- PCB and multilayer production and assembly
- Production and assembly of cables and wire-wrap parts
- Mechanics and electronics engineering





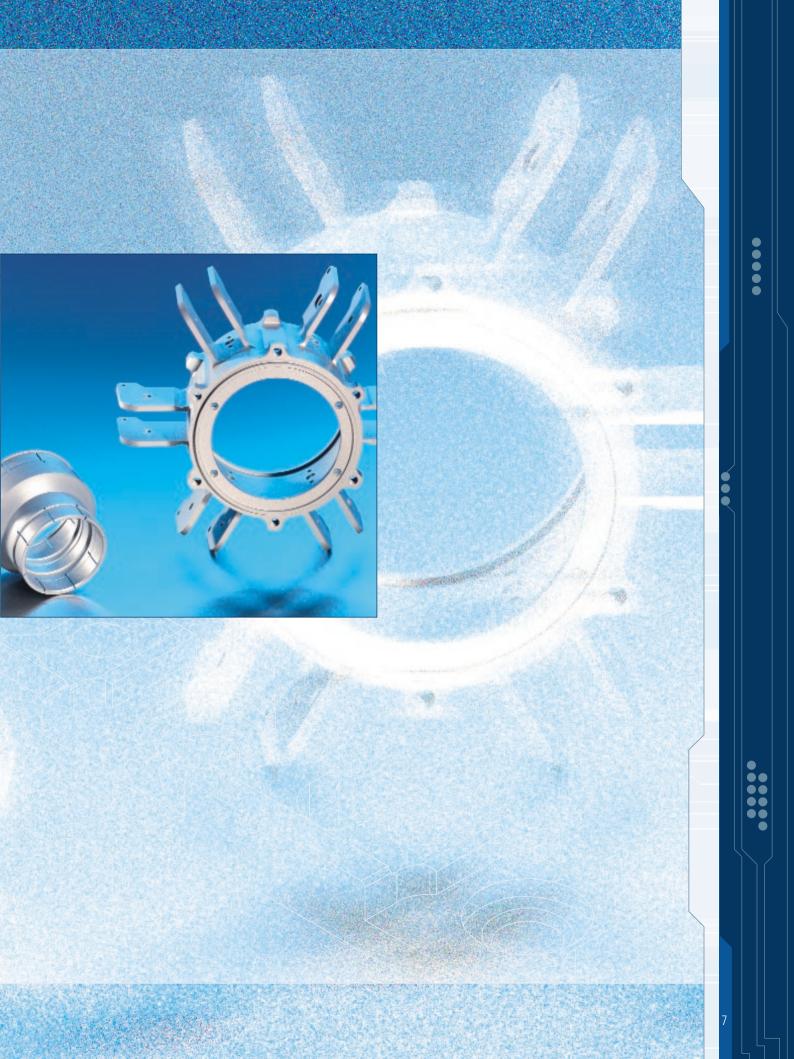
# **Cutting machining**

Our cutting machining service covers the full spectrum. We not only lathe, mill and drill precisely to your data, but also build parts according to your drawings. Our engineers advise you on production-oriented design. Our wide selection and ultramodern pool of machinery makes for economical production from one-of-a-kind parts to high-volume series. We can handle the complete processing of a workpiece from start to finish, achieving high quality at minimum turnaround times. High-speed processing of light metals is a focal point of our production.

As the supplier to a large manufacturer of electronic goods, we are especially experienced in the production of RF aluminium shields for printed board assemblies in line with EMC standards, which we are able to manufacture inexpensively in bulk quantities and with a high degree of automation.







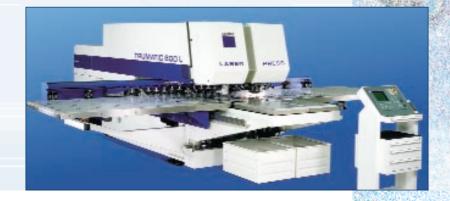
# **Non-cutting machining**

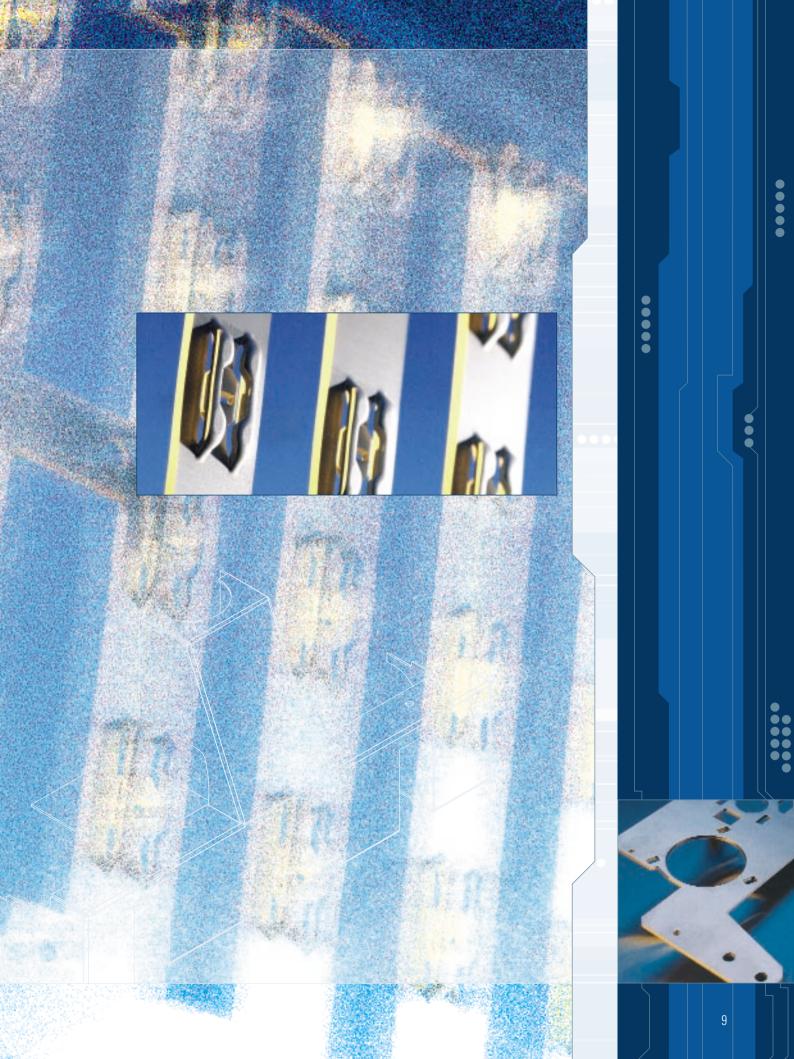
Our experienced team uses its expansive know-how and powerful machinery to develop everything that is feasible using sheet metal or metal foil, whether you come to us with final blueprints, samples or just a rough idea.

We build, stamp, bend, emboss, counterbore, rigidize, level, barrel finish, screw, rivet, weld or crimp until the result fully complies with your expectations. If the new part is then to be finished with a specific surface quality, the coating and electroplating departments are just around the corner to give your product the final touch.

Since our pool of machinery is operative six days a week around the clock, even rush orders are no problem.







# Manufacture of tools, systems and jigs

The design of a tool considerably affects the production costs of a workpiece. Our toolmakers are highly motivated to find a solution that optimally matches the customer requirements.

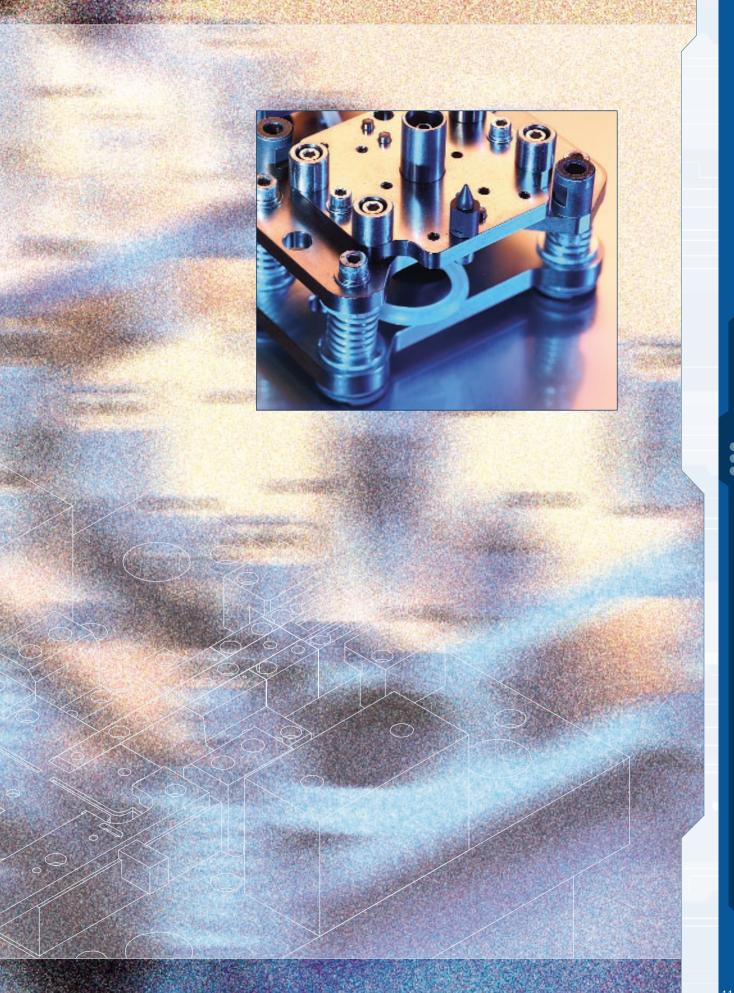
We manufacture tools, systems and special purpose machines not only for our own production but for our customers as well. Based on your standard specifications, we develop and design the following:

- Bending, stamping and composite tools
- Special machines and systems in line with your specifications
- Precision equipment for the semiconductor industry
- Welding and testing jigs for the automobile industry

If you include us early on in your plans and ideas, we can come up with prototypes and samples in only a short time. Once you give your final approval we will quickly complete development up to the manufacturing and series production stage.







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## **Assembly**

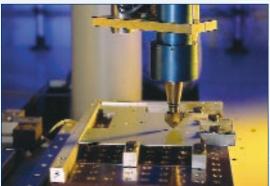
Owing to our ample resources and years of experience, we are able to assemble any item we produce into high-quality modules and complete products in a work area of more than 10000 m<sup>2</sup> in Teisnach and in Vimperk, Czech Republic, our subsidiary plant. With robot assistance, even high quantities can be handled at low costs.

All mechanical, electromechanical and electronic components manufactured in our departments can be used for assembly, and they can be combined in any manner required. We also design and manufacture the cables and cable harnesses that are needed.

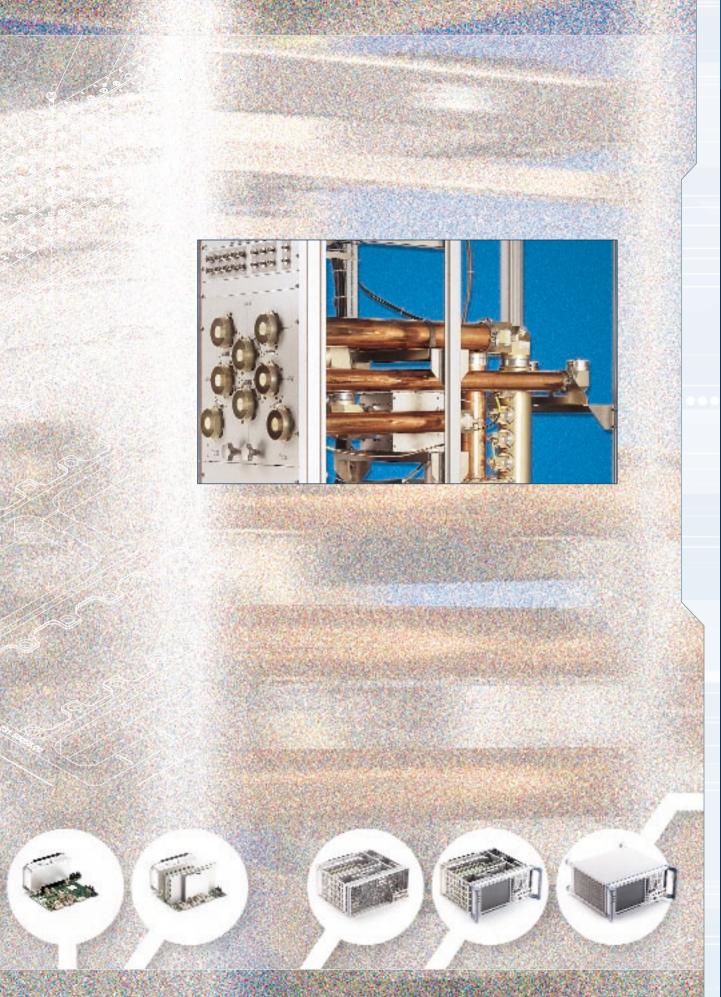
Our test shops verify the T&M quality of an assembled module or a finished product and document it in a test certificate.

We are also experts in antenna manufacturing. As a leading company in radiocommunication technology, Rohde & Schwarz offers a broad spectrum of transmit, receive and test antennas; their mechanical components are all manufactured and assembled in Teisnach. We gladly let our know-how work for you.









# **Electroplating**

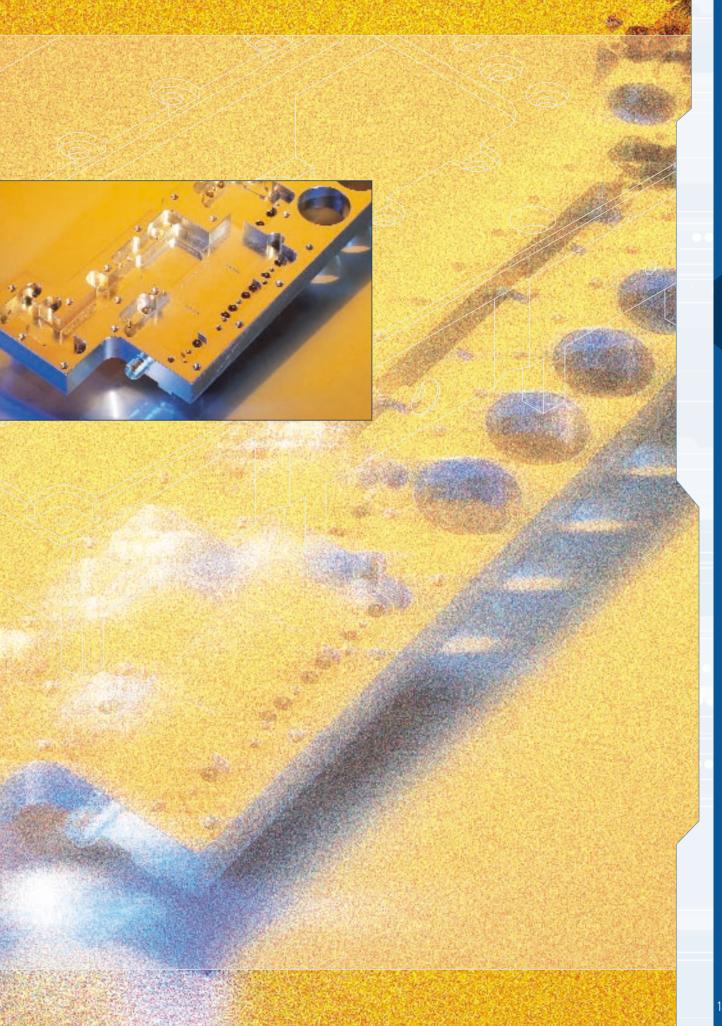
Whether for functional reasons or to add an attractive finish, metal parts must be subjected to electroplating to become true products.

We offer copper, nickel (plated and chemical), tin, zinc, silver, gold or rhodium as standard coating materials. The size of the parts to be plated depends on the desired finishing metal, but should be adequate to give even bulky parts a high polish.

Besides electrolytic and chemical metal deposition, electroplating covers passivation of high-grade steel as well as pickling, chromating and anodic oxidation of aluminium. Our Teisnach plant carries out these processes with customary Rohde & Schwarz reliability.

Our electroplating facilities are equipped to match state-of-the-art requirements, ensuring high precision. Efficient workflows ensure fast delivery and competitive prices. Computer-controlled wastewater treatment makes the plant exemplary in adherence to environmental regulations.





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# Lacquer coating, powder coating, screen printing

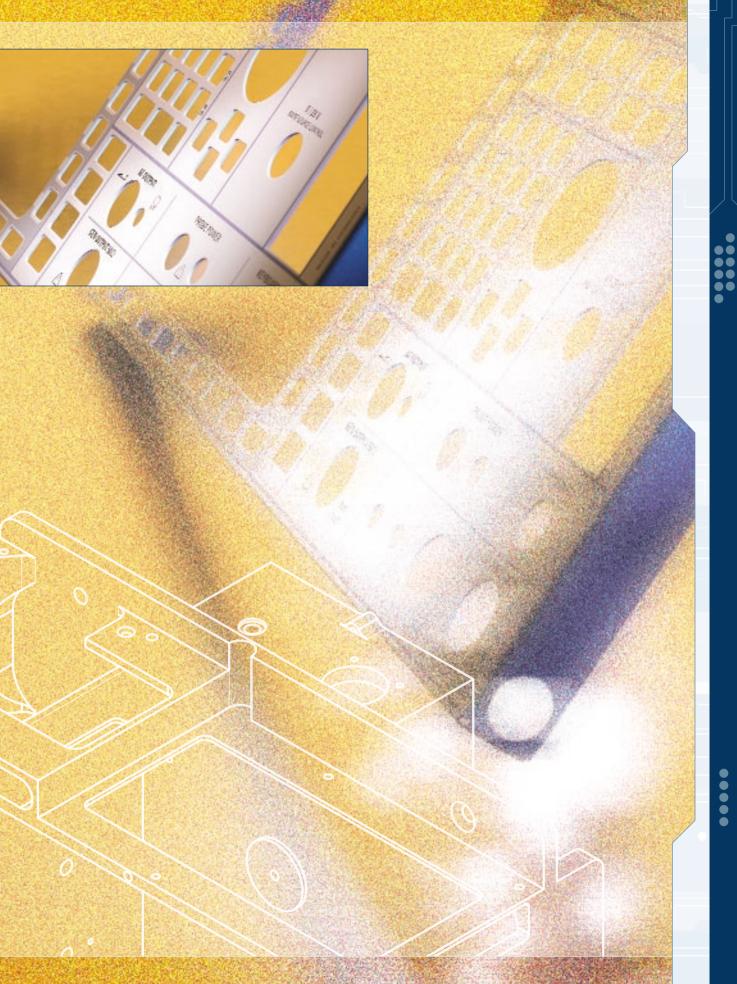
Our coating department stands ready when it comes to protecting metal surfaces, adding information to them or finding a design that optimally fits the product. It is fully capable of meeting all quality requirements and processing any part from the size of a thimble to that of a garage door.

Rohde & Schwarz Teisnach offers two types of high-quality finishing processes: the wet-coating process for parts made of diverse materials using air-drying or heat-drying finishes as well as the low-cost powder-coating for conductive and temperature-resistant backgrounds. Both processes can produce different surface structures, e.g. smooth, fine or coarse.

Negative printing is the obvious choice for the equipment rear since it seals the surface and adds the required information in a single step, doing away with a second coating process.

We are particularly skilled in screen printing for single- and multicoloured panels with a high definition of detail.

We achieve maximum quality under very clean ambient conditions, as required when processing Plexiglas panels, for example.







### **Full electronics service**

#### **PCB** production

As the manufacturer of all PCBs for Rohde & Schwarz, the Teisnach plant ensures top quality and the use of state-of-the-art technologies in PCB production.

We supply the following, whether as prototypes, series production or by rush order:

- Dual-sided PCBs and multilayers from 2 to 20 layers
- Multilayers in hybrid Teflon/FR technology
- Circuit boards in HDI (high density interconnection) technology

Our zero-defect philosophy is our obligation to all customers to supply flawless products which we ensure by 100% PCB testing.

#### **PCB** assembly

We are also ready to assemble PCBs manufactured by us to fit your requirements. Our flexible lines allow the processing of job lots and of industrial-scale series.

We have some 8000 electrical and 4000 mechanical quality components available in stock.

We will also procure any other required component at a favourable price.

As the production plant for a manufacturer of top-grade T&M equipment, we place special importance on the certified T&M quality of the parts we manufacture. In particular, we are able to perform and document reliable high-frequency measurements (VSWR and scattering parameters). We also offer circuit tests, high-voltage tests and VDE tests.

#### **Electronics engineering**

If you want to transfer all remaining stages of the development of your module — based on the finished circuit design — to a service provider, we offer you a full scope of services:

- Drafting of CAD circuit diagrams
- PCB design and layout
- Creation of samples and prototypes
- Planning of series production
- Precompliance tests and certifications

And we are ready to provide additional support - for example the design of interfaces or component housing.



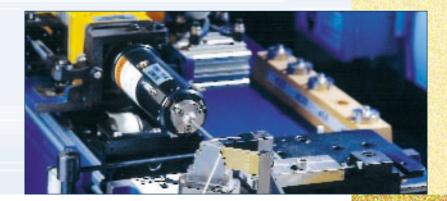
## Cables and wire-wrap parts

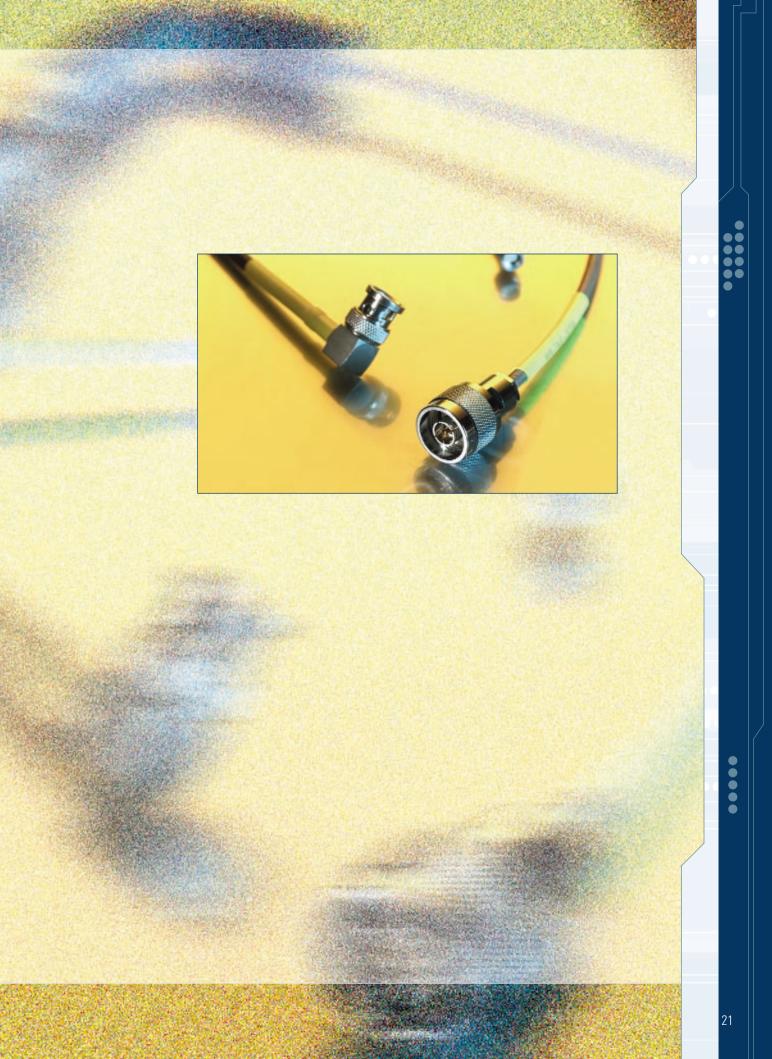
We are experts in handling special requests, including those for cables and wire-wrap parts, an area where customers seldom find products on the market that match their purposes and usually have them made to their specifications.

We produce flat cables, multicore connecting cables and cable harnesses as well as rigid and flexible coaxial cables. When it comes to inductive wire-wrap parts, we offer a wide selection of coils and transformers, in open or encapsulated style.

We always manufacture products exactly to customer specifications, such as cables with labelling and the required connectors. Rigid coaxial cables can be bent to any form required.





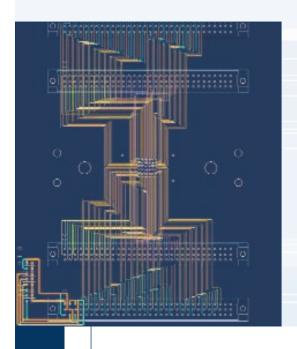


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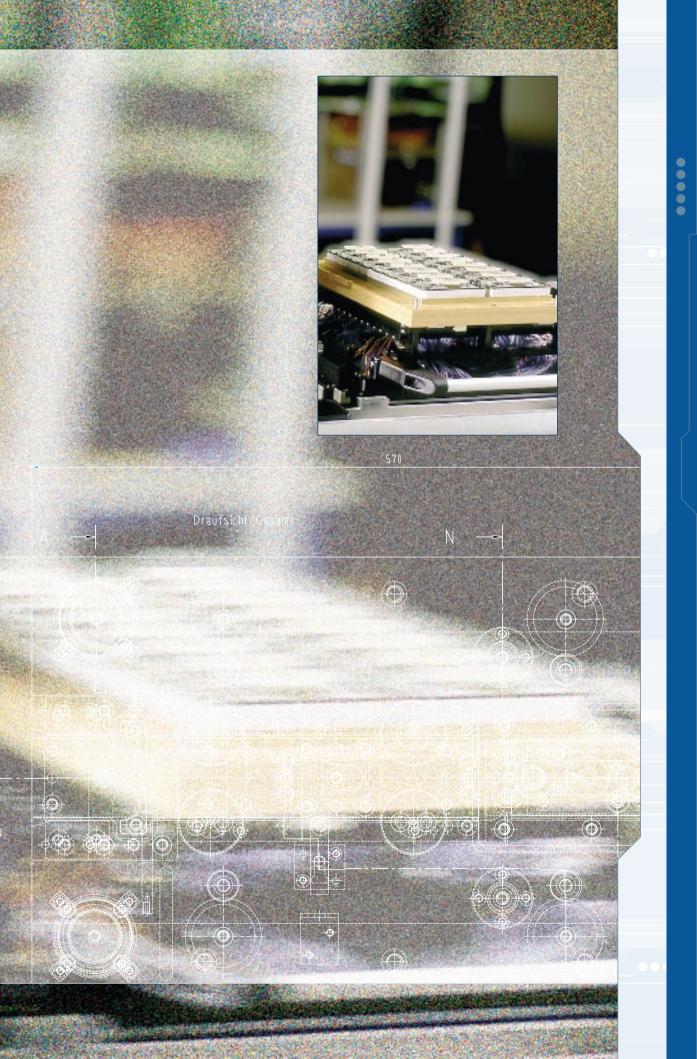
# **Engineering and system design**

In addition to supplying parts and components, the Rohde & Schwarz Teisnach plant provides comprehensive service in the design and production of complex electrical/mechanical modules and systems. This includes the development of test solutions or the construction of electrical/mechanical systems for automation tasks. The resulting products — covering the spectrum from jig, adapters and interfaces to fully automatic test systems — are used for example in the automobile and semiconductor industries.

The range of services for the systems and equipment we manufacture includes of course documentation, on-site turnkey installation and maintenance and repair services — worldwide.







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# Your way to Rohde & Schwarz Teisnach

Please contact our sales department for an initial consultation as follows:

#### Phone:

+49 9923 85-70

#### Fax:

+49 9923 85-712 18

#### E-mail:

Vertrieb@rsdts.rohde-schwarz.com

#### Postal address:

Rohde & Schwarz GmbH & Co. KG

Werk Teisnach

Kaikenrieder Str. 27

94244 Teisnach

Germany

For further information, including about our current machinery, visit the Internet at

www.teisnach.rohde-schwarz.com

